

A NEW NORTH AMERICAN NOTONECTA.

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Notonecta borealis n. sp.

Notonecta lutca Bueno 1904, Ent. News xv: 220; and 1905, Journ. N. Y. Ent. Soc. xiii: 160, pl. 7, fig. 7 (nec O. F. Müller 1776, Zoöl. Dan.: 103).

Notonecta borealis Hussey 1919, Occ. Pap. Mus. Zoöl. Univ. Mich. No. 75: 16 (without description).

Head: width, including eyes, two and one half times the length (3.8:1.5); front (vertex of Kirkaldy) slightly over twice as wide as vertex (synthlipsis of Kirkaldy) at its narrowest point, somewhat tumid medially; eye one and one half times as wide as vertex; clypeus long and pointed, its sides deeply sinuate; head above clypeus coarsely transversely rugose, with a broad smooth flattened median longitudinal keel. *Thorax* robust; width anteriorly subequal to length (34:30); maximum width is to length as 50 to 30. Scutellum one fourth wider than long (32:25), its sides strongly sinuate, its tip long and acute. *Hemelytra*: lobes of membrane unequal, otherwise undistinguished. *Legs*: first pair shortest and raptorial, third pair longest and natatorial, as is usual in *Notonecta*. Tibia of first pair one fifth longer than the femur, which is strongly incrassate and nearly three times as long as wide at its widest point; tarsus five eighths as long as tibia, the first tarsal joint nearly two and one half times as long as the second (36:15), claws stout and black. Femur and tibia of second pair subequal in length; tarsus about two thirds as long as the tibia, the first tarsal segment slightly more than twice as long as the second, the claws stout and black; femoral tooth long, stout, blunt; the inner basal angle of the femur bears two long setae, about twice as long as the femoral tooth, and two shorter setae are situated at the extreme apex of the antero-dorsal margin; postero-lateral margin of tibia and first tarsal segment with six or seven long black setae nearly uniformly spaced along its length. Tibia and tarsus of third pair subequal in length; femur two ninths longer than tibia; first tarsal segment twice as long as second, which bears no claws; all the joints are invested with series of small black spines set longitudinally. *Abdomen*: fringing hairs of channel heavy, black; male genital segment prominent, claspers with a group of long spine-like hairs in the middle; male

genital capsule and gonapophyses of female (Fig. 1) distinct from those of other American species, showing near relationship to *Notonecta irrorata* (as has been pointed out by Hungerford [1920, Univ. Kans. Sci. Bull., xi: 331, footnote]).

Color: General coloration luteous, nearly white in fresh specimens, with a dark streak of varying length following the costal margin from the base of the hemelytra; eyes bright brown; scutellum pale yellow; rostrum and legs ivory-white or greenish, the apical segment of the former piceous; underside of the body in general dark or black. Rarely the hemelytra are suffused with black or the scutellum is marked with blackish, or both structures bear dark areas.

Measurements: Head, length, 1.35 mm.; width, 3.5 mm.; front, width, 1.5 mm.; vertex, width, 0.72 mm.; eye, width, 1.2 mm.

Thorax, width at anterior margin, 3 mm.; width at posterior margin, 3.6 mm.; width at humeri, 4.7 mm.; length, 2.72 mm.

Scutellum, width, 3.2 mm.; length, 2.5 mm.

Abdomen, greatest width, 4.9 mm.; length from tip of scutellum to apex of hemelytra, 7.25 mm.

Total length of insect, 13.82 mm. (range, 12.4 to 14.2 mm).

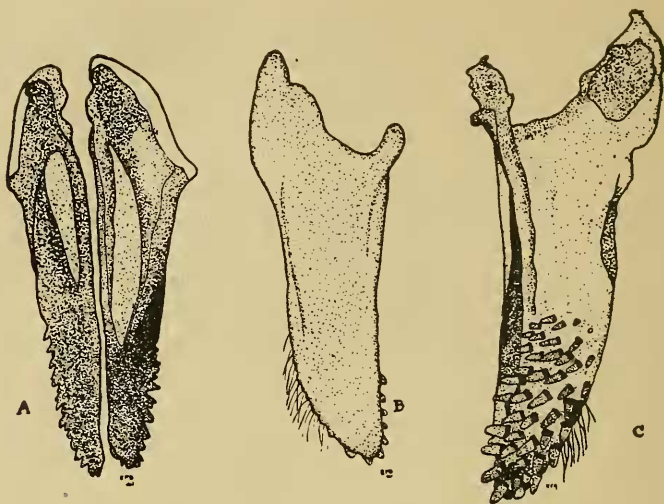
Humeral breadth, 4.7 mm. (range, 4.4 to 5.1 mm.).

Holotype: male, Bearfoot Mts., B. C., 15: IX: 03.

Paratypes: males and females, topotypic, 15: IX: 03 and 17: IX: 03. Males and females, Cheboygan Co., Mich. (Douglas Lake), numerous specimens collected during July and August, 1913 and 1914 (Eva G. Miller); also 5: VII: 18 to 29: VIII: 18 (R. F. Hussey and E. P. Butler). Female, Hutchins Lake, S. D., 12: VII: 22 (H. C. Severin). 3 ♂♂, 1 ♀, Lake Hendricks, S. D., 12: VII: 22 (H. C. Severin). 1 ♂, 1 ♀, Stony River Camp No. 9, Lake Co., Minnesota, 15: VIII: 22 (H. B. Hungerford). [Det. by Hungerford.] Female, Maine (Collection Ashley).

Type and paratypes in coll. J. R. de la Torre-Bueno; paratypes in collections of R. F. Hussey, H. B. Hungerford, H. M. Parshley, W. E. Hoffman, and the Museum of Zoölogy, University of Michigan.

Description drawn up under binocular microscope, using 10 × ocular and 55 mm. objective; theoretical magnification, 17. All measurements except total length and width were made with an ocular micrometer.



DESCRIPTION OF THE FIGURES.

FIG. 1. Gonapophyses of *Notonecta borealis*, ♀, from three different specimens collected at Douglas Lake, Michigan. *A*, both gonapophyses draw in situ, ventral aspect. *B*, right gonapophysis, bleached with chlorine, median aspect. *C*, right gonapophysis, bleached, lateral aspect.

This striking species belongs to the general group of robust forms typified by *Notonecta irrorata*, to which its genitalia show it to be most nearly allied, but its coloration and its less divergent eyes distinguish it at once from that form. It is similar in aspect to the white specimens of *Notonecta shooterii* Uhler, from which it may be distinguished by the different head, prothorax, and scutellum, and by the larger and stronger spine on the intermediate femur, more remote from its apex than in *shooterii*. The less robust form and smaller head, together with the difference in the femoral spine, suffice to distinguish *borealis* from *Notonecta lutea* Müller.

This species serves to emphasize the well-known hobby of the senior author, namely, the importance of indicating structural characters in describing new species. Here we have three distinct

forms answering to the same general color descriptions, and easily defined by the old-time loose structural descriptions. It seems curious that in this genus most descriptions are based upon color alone, and where structures are mentioned at all they are merely alluded to in a very general way.

Notonecta borealis was noted by the junior author to rank next in abundance to *N. undulata* at Douglas Lake, Michigan, in 1918, where it was the only species of the genus whose adults were found commonly before July 20. Its favorite haunts were the partially filled peat bogs, and in some of these it was the most abundant *Notonecta* found. Its habits are quite similar to those of *N. insulata*: it prefers the open water and is only very rarely taken among vegetation. It is a very alert and wary species.

This form seems to be truly boreal, and extends entirely across the continent. It seems also to be fairly common, judging from the number of specimens we have seen and examined.

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